

Description

Combination buttonhook and zipper puller

BACKGROUND OF INVENTION

- [0001] This invention is a novel combination buttonhook and zipper puller that is suitable for use by persons whose strength or dexterity in fastening a button through a buttonhole, or in grasping a zipper handle for opening or closing a slide fastener, may be temporarily or permanently diminished. It is also suitable for use by persons who are temporarily unwilling to perform such actions, such as persons who have recently applied a fresh coat of fingernail polish and wish to avoid its becoming marred by coming into contact with articles of clothing. In either case, it may be desirable for a person to perform the functions of buttoning a button, or raising or lowering a zipper, using an implement designed for that purpose.
- [0002] Buttonhooks known in the prior art typically consisted of a thin shaft terminating at the extreme end in a hook shape,

such as is disclosed in U.S. Patent No. 5,732,447 to Nolen et al. Other buttonhooks, however, such as that depicted in U.S. Patent No. 4,141,131 to Johansson, terminate in a loop that fits over and around a button. When buttoning a button, the hook- or loop-end of the shaft of such buttonhooks is inserted through a buttonhole, hooked or looped around the thread holding a button to the immediately adjacent fabric, and withdrawn back through the buttonhole, bringing the button along with it. Some prior art buttonhooks having a hook-end may also have been suitable for the purpose of pulling a zipper handle by inserting the hook-end through a hole in the zipper handle, such as those shown in U.S. Patent No. 6,446,312 to Kabant, or U.S. Patent No. 6,112,958 to LaMacchia et al. In all such cases, however, it was necessary for the user of the device to grip a handle with the thumb and fingers in order to cause the zipper to be raised or lowered, or to manipulate the buttoning of a button.

[0003] Buttonhooks having an elongated shaft and a hook-end have also been used in lacing or unlacing bootlaces. The elongated shaft and hook-end of the buttonhook enabled a person to reach and grasp bootlaces for tightening or loosening without having to reach the lowermost laces

with the hands. This use of the buttonhook, however, has declined as the popularity of boots having laces has declined through the general population.

[0004] Although buttonhooks have retained their essential usefulness in fastening buttons, they are inconvenient to carry, being too long to fit conveniently in a pocket or purse, and are not usable by persons who are unable to grip the handle with sufficient strength to use the device. What is needed is a buttonhook that may be used with a minimal amount of dexterity and strength, that is useful for other tasks in addition to fastening buttons, and that is of a suitable size and shape for carrying in a pocket or purse. The combination buttonhook and zipper puller of this invention may be used for buttoning buttons or raising or lowering zippers. It also may be used for performing other functions such as retaining keys or displaying small items of artwork or memorabilia, and does not require the user to come into contact with clothing or to have the strength needed to grip and pull a zipper or button.

SUMMARY OF INVENTION

[0005] The device of this invention has a tapered, elongated portion forms that a loop suitable for inserting through a

buttonhole, placing around a button, and pulling the button back through the buttonhole. The other end of the device has an oval grasping ring to which a pulling force may be applied simply by inserting the fingers or thumb through the ring without the need for a separate handle. The device is made from one or more wire-like strands that form the shape of the device. One or more internal supports may be utilized to provide rigidity or to permit flexibility to perform a variety of functions. The grasping ring is moderately rigid, having some flexion, and may also be used to retain keys, a whistle, or other items of suitable size and shape. Two or three fingers of the user's hand may be placed through the ring to apply a pulling force without the need to flex the muscles controlling the fingers and thumb. The tapered, elongated portion of the device has a strands forming opposite sides of the device. One strand extends all of the way down one side of the device and curves to form a hook at the extreme tapered end, meeting the other strand a short distance from the hook-end. The two strands normally meet to form a smooth junction in which one strand has a slightly narrowed end and mates with a receiving channel formed at the end of the other strand. The strands of the elongated

portion have a slight flexion applied to them by the grasping ring. This flexion maintains the strands in a secure, closed position when the end of one strand is seated within the receiving channel on the other strand, and holds the strands open when they are not mated together.

[0006] In operation as a buttonhook, the elongated end may be inserted through a buttonhole, looped around a button, and pulled back through the hole, all with little or no grasping or pulling force being required from the muscles controlling the finger and thumb. The flexible structure and tapered shape permit the device to be used in buttonholes of small sizes. When the device is used in a smaller-sized buttonhole, the tapered end is inserted and moved in the direction of the button. As the device moves toward the button, the distance between the tapered strands widens to approach the maximum slit length of the buttonhole. If further movement toward the button is needed, the strands may be squeezed by hand or through the action of forcing them through the buttonhole to allow further insertion of the tapered end through the buttonhole. It will then be possible to loop the extreme end of the device around the button to be pulled through the buttonhole, either by squeezing the strands to cause them

to open and form a hook that can be looped around the button, or simply by slipping the end of the device over the button. In either case, the button may then be pulled back through the buttonhole. The grasping ring is large enough to receive fingers or a thumb, and force may be applied to it from the base of the fingers or thumb without applying significant "pincer" force through the thumb and fingers. The shape of the device also makes it possible for a button to be hooked and buttoned without fingertips (or fingernails having wet polish on them) coming into close proximity to the button, buttonhole, or surrounding fabric.

[0007] When used as a zipper puller, the strands are briefly compressed to unseat them, and then are allowed to open under the spring extension force created by the grasping ring. The hook-end of one strand may be inserted through the hole at the extreme end of the zipper handle, and the sliding mechanism may be raised or lowered by pulling the oval ring upward or downward by fingers or a thumb inserted through the ring. Again, muscles controlling the thumb and fingers will require only minimal exertion, as the pulling force can be applied through the ring without the need for thumb and fingers to pinch the zip-

per handle. Also, as previously described, the device can be used without the need for fingertips or wet fingernails to come into close proximity to the zipper or surrounding fabric.

- [0008] The device of this invention can also be used as a key holder or can be inserted through an ornamental device, such as woven or knitted fabric, strands of yarn, or a wooden or plastic badge. The use of such a device provides an additional gripping area, if such is desired, and may help to identify or locate the device if it should become buried within a purse or pocket.
- [0009] It is an object of this invention to provide a buttoning device for use by persons who are unable or unwilling to grasp a button and surrounding fabric, and to manipulate them to cause the button to pass through a buttonhole.
- [0010] It is a further object of the invention to provide a buttoning device that will fasten a button within a buttonhole, regardless of the size of the button or the buttonhole, so long as the button and buttonhole are appropriately matched.
- [0011] It is yet a further object of this invention to provide a device for raising or lowering a zipper or slide fastener without requiring the fingers to grip the zipper handle.

[0012] These and other objects of the invention will be more fully explained in the accompanying brief description of the drawings.

BRIEF DESCRIPTION OF DRAWINGS

[0013] Fig. 1 is a front view of the device of this invention in which the strands are closed.

[0014] Fig. 2 is a front view of the device of this invention in which the strands are open.

[0015] Fig. 3 depicts the device of this invention being inserted through a buttonhole.

[0016] Fig. 4a shows the device of this invention in proximity to the handle of a slide fastener.

[0017] Fig. 4b is a detailed view of the device of this invention engaged through the hole of a handle of a slide fastener.

[0018] Fig. 5 is a detailed view of the seating mechanism between two strands of the device of the invention.

DETAILED DESCRIPTION

[0019] An embodiment of the combination buttonhook and zipper puller of this invention 10 is depicted in Fig. 1. The device has an oval grasping ring 20 of sufficient size to receive adult human fingers or thumb. Although depicted as an oval in Fig. 1, the grasping ring may be of any con-

venient shape, so long as the size admits of receiving one or more adult human fingers or a thumb. The device has an elongated and tapered portion 30 formed of strands 30 and 60. The extreme end of the elongated portion 40 forms a rounded end whose width is sufficiently narrow to fit within a small buttonhole. Strands 30 and 60 are semi-flexible, being made of wire or plastic filament, or some other suitable substance, and are releasably joined at seating element 50. Strands 30, 60 are held in a joined or seated position through an outwardly-directed extension force produced by grasping ring 20.

[0020] The grasping ring and elongated portions are moderately flexible, and are made of metal, plastic, or some other substance capable of resilience, or "springiness" to resume an original shape after being held in compression or flexion for long lengths of time. Extreme end 40 may be made of metal, plastic, or some other substance, and must have sufficient rigidity to maintain a curved shape during the application of a pulling force, such as would be encountered when raising or lowering a sliding fastener. Seating element 50 is formed at the end of one of the two strands, 30 or 60, and acts as a "seat" or channel to receive the end of the other strand.

[0021] Fig. 2 shows the device of this invention 10 in which the two strands 30, 60 are separated at the point where their ends meet 50 to form an opening. As shown in Fig. 2, strand 60 has moved inwardly with respect to strand 30, and the curved shape at the end of the elongated portion 40 now forms a hook. Under normal operation, the device will assume the configuration shown in Fig. 2 when a squeezing force is applied to the upper portions of strands 30, 60. A supplementary support member 70 is shown within the grasping ring to provide additional support to the device. Additional support, such as is provided by support member 70, may be used to provide more rigidity to the device, or to add additional tension or flexion forces to the opening and closing action of strands 30, 60. It will be apparent that the amount of squeezing force necessary to open or close the area between strands 30, 60 will depend upon the distance between the point at which the squeezing force is applied and the grasping ring. A greater force will be required as the squeezing action is applied at a point that is closer to the grasping ring 20. Where the finger and hand strength of the person using the device is a consideration, the strands 30, 60 may be made longer, and the tension required to squeeze

them will be correspondingly less if the point of squeezing is moved closer to the end 40.

- [0022] Fig. 3 demonstrates one of the uses for the device of this invention. In Fig. 3, the device is being inserted through a buttonhole 90, and has been looped or hooked around a button 80. An attachment depicted as a series of rings 140 is interconnected at grasping ring 20. Although the attachment is depicted as a series of rings 140, it may be some other ornament or practical item (such as keys), or it may be a lanyard or other means for holding or carrying the device, or for attaching additional items to it.
- [0023] One of the uses of the invention is demonstrated in Fig. 3, in which the buttonhole is too small to receive the tapered end of the device without squeezing it slightly. Even though the strands 30, 60 must be squeezed to fit fully through the buttonhole, they are still able to perform their function of grabbing the button and pulling it back through the buttonhole by hooking end 40 about the thread beneath the button. Although the device of this invention may permit the strands 30, 60 near the end 40 to capture a button by passing on either side of it before drawing it back through the buttonhole, the squeezable strands 30, 60 allow a single device to accommodate but-

tons of practically any size. By squeezing the strands, the device may be made to fit through a buttonhole that may be too small. By forming an opening 50, and a hook at end 40, the device may capture a button that is too large to fit between the strands when seated in their closed position. Where the strands have been squeezed for either of these reasons, they will resume their normal, seated positioning with respect to one another as the device is being withdrawn from the buttonhole, thus presenting a smooth surface to the buttonhole where the connection point contacts the fabric.

[0024] Figs. 4a and 4b depict the device of the invention being used as a zipper puller. In Fig. 4a, a slide fastener 100 is shown midway along a track 110 having fabric attached to either side. In order to capture the zipper handle, the strands 30, 60 must be opened to form an opening 50 just above the lower end of the device 40. In Fig. 4b, strand 30 has been placed through the hole 130 in the handle 120 of the zipper 100. In this position, the grasping ring may be pulled simply by placing one or two fingers, or a thumb, through the ring and pulling. There is no need for the thumb and fingers to pinch the handle, nor for the fingertips or fingernails to touch the zipper

handle to raise or lower the zipper. When the zipper has reached a desired position, the device of the invention may be removed simply by squeezing strands 30, 60 and allowing the zipper handle to slip off the device through the opening 50.

[0025] As shown in Figs. 4a and 4b, the device has been opened through a squeezing force having been applied to strands 30, 60. The strands will normally be reseated during the raising or lowering of the zipper, although the precise configuration during that action is a matter of choice and convenience to the user.

[0026] Fig. 5 shows one configuration for releasably connecting strands 30, 60. In Fig. 5, strand 60 has been moved slightly out of seating channel 140 which forms the end of strand 30. As strand 60 is moved slightly up or down with respect to the plane of the drawing, it will have sufficient space to pass by seating channel 170 without engaging it, in the manner of a safety pin. When it is desired to reconnect strands 30, 60, the strands will be squeezed to bring the respective ends in proximity and, with a slight upward or downward movement, as described above, strand 60 may be brought into a position in which the natural extension force being applied by grasping ring 20 causes

the end of strand 60 to become and remain seated within seating channel 140. It will be understood by persons of skill in the art that the specific embodiments shown and described are not the sole means for practicing this invention. For example, although seating of strands 30, 60 have been described as applying a force to urge strand 60 outwardly with respect to strand 30, strands 30, 60 could be aligned and seated such that the force urged strand 60 inwardly with respect to strand 30, and this, and other embodiments, would fall within the spirit and scope of the invention, which is limited only by the following claims: